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CLAIMS:

1. A composite beam which includes:

- 5 (a) a beam;
- 10 (b) a solid slab or a composite slab positioned on and supported by the beam, the solid slab and the composite slab including a slab section and a plurality of concrete ribs extending from the slab section;
- 15 (c) at least one shear connector positioned in at least one of the concrete ribs and connecting the solid slab or the composite slab to the beam; and
- 20 (d) a reinforcing component embedded in at least one concrete rib that includes a said embedded shear connector or connectors, the reinforcing component being in the form of a mesh that includes line wires and cross wires that are connected together at the intersections of the wires.
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2. The composite beam defined in claim 1 wherein the mesh is positioned so that the line wires extend in the longitudinal direction of the concrete rib, ie in the longitudinal direction of the beam.
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3. The composite beam defined in claim 1 or claim 2 wherein the mesh is positioned in the concrete rib between 25% and 75% of the height of the concrete rib.
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4. The composite beam defined in any one of the preceding claims wherein, in a situation in which the composite beam includes a composite slab rather than a

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solid slab, the composite slab includes profiled metal sheeting having a plurality of metal pans separated by metal ribs and concrete cast on the profiled sheeting, whereby the metal pans and the metal ribs define an outer
5 surface of the concrete rib.

5. The composite beam defined in claim 4 wherein the mesh is positioned in the concrete rib below the level of tops of adjacent metal ribs of the profiled sheeting.
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6. The composite beam defined in claim 5 wherein the mesh is positioned in the concrete rib between 25% and 75% of the height of the adjacent metal ribs.

15 7. The composite beam defined in any one of the preceding claims wherein the mesh extends across the width of the concrete rib at the position of the mesh in the concrete rib.

20 8. The composite beam defined in any one of the preceding claims wherein the reinforcing component is a flat sheet of welded wire mesh that includes a rectangular array of parallel line wires and cross wires welded together at the intersections of the wires.
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9. The composite beam defined in any one of claims 1 to 13 wherein the reinforcing component is mesh formed from line wires and cross wires that are welded together at wire intersections and has line wires that have a zig-zag shape
30 along at least part of the length of the line wires.

10. The composite beam defined in any one of the preceding claims wherein the reinforcing component further includes a plurality of additional reinforcing elements
35 that extend transverse to the lines wires of the mesh and have one or more than one section out of the plane of the mesh.

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11. The composite beam defined in claim 10 wherein the additional reinforcing elements is cranked handlebar-shaped.

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12. The composite beam defined in claim 10 or claim 11 wherein the section or sections of each additional reinforcing element that is out of the plane of the mesh extends from the concrete rib into the slab section of the solid slab on the composite slab.

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13. The composite beam defined in any one of the preceding claims wherein there are a plurality of shear connectors in the form of headed studs.

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14. The composite beam defined in any one of the preceding claims wherein there is a plurality of shear connectors and a minimum spacing between the shear connectors along the length of the beam of at least 5 times the diameter of the shear connectors.

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15. The composite beam defined in any one of the preceding claims wherein there is a plurality of shear connectors and the spacing between the shear connectors along the length of the beam is no more than 7.5 times the height of the shear connectors above the top of the concrete ribs.

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16. A composite beam substantially as hereinbefore described with reference to the accompanying drawings.

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17. A composite beam which includes:

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(a) a beam;

(b) a solid slab or a composite slab positioned on and supported by the beam, the solid slab

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and the composite slab including a slab section and a plurality of concrete ribs extending from the slab section;

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(c) at least one shear connector positioned in at least one of the concrete ribs and connecting the solid slab or the composite slab to the beam; and

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(d) a reinforcing component embedded in at least one concrete rib that includes a said embedded shear connector or connectors, the reinforcing component being in the form of a mesh that includes line wires and cross wires that are connected together at the intersections of the wires, the mesh being positioned so that the line wires extend in the longitudinal direction of the concrete rib, ie in the longitudinal direction of the beam, and the mesh being positioned in the concrete rib between 25% and 75% of the height of the concrete rib.

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